

Application No. 10/666,165
Amendment dated 6 June 2005
Reply to Office Action dated 4 January 2005

Attorney Docket No. 5701-00297

Remarks

Applicant respectfully requests consideration of the instant application in view of the above amendments and the following remarks.

Claim Objections

Claim 11 stands objected to because at line 2, "that" should be "than". Claim 11 has been amended to replace "that" with --than-- on line 2.

Claim Status

Claims 1-29 are pending in the application.

Claims 20-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,297,439 to Tyren et al.

Claims 1-7, 14-15, 17, 19 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of U.S. Patent No. 5,428,534 to Wetzel et al.

Claims 8, 9 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1, 6 and 17, and further in view of U.S. Patent No. 3,835,371 to Mirdadian et al.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claim 1, and further in view of U.S. Patent No. 5,276,398 to Withers et al.

Claims 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1, 6 and 17, and further in view of U.S. Patent No. 5,760,577 to Shizuya.

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1 and 6, and further in view of U.S. Patent No. 5,707,076 to Takahashi.

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The Examiner indicated in the Office Action Summary that claims 1-29 were rejected. However, the Examiner does not appear to have indicated in the Detailed Action any basis for rejecting claim 28.

Claim Amendments

The claims have been amended, as follows:

Claim 11 has been amended at line 2 to replace "that" with --than--.

Claim 17 has been amended as follows, as supported by FIGS. 4 and 13 of the drawings, and by the specification, *inter alia*, at page 28, line 25 through page 31, line 19, and page 44, line 26 through page 48, line 12:

at line 1 to insert --said at least one coil comprises a first coil electrically connected to a first electrical circuit, and-- after "wherein"; and

at line 8 to insert --, said first and second electrical circuits are electrically isolated from one another and magnetically coupled to one another-- after "body".

Claim 19 has been amended as follows, as supported by FIGS. 4 and 13 of the drawings, and by the specification, *inter alia*, at page 28, line 25 through page 31, line 19, and page 44, line 26 through page 48, line 12:

at line 1 to insert --said at least one coil comprises a first coil electrically connected to a first electrical circuit, and-- after "wherein";

at line 8 to delete "and"; and

at line 10 to insert --, said first and second electrical circuits are electrically isolated from one another and magnetically coupled to one another-- after "body".

Claim 20 has been amended at line 4 to insert --, wherein said magnetic circuit comprises at least a portion of a vehicle body or frame-- after "coil".

Claim 25 has been amended to at line 1 to depend upon claim 24 instead of claim 22.

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Claim 27 has been amended as follows, as supported by FIGS. 4 and 13 of the drawings, and by the specification, *inter alia*, at page 28, line 25 through page 31, line 19, and page 44, line 26 through page 48, line 12:

at line 1 to insert --said at least one electrical circuit comprises first and second electrical circuits and said at least one coil is electrically coupled to said first electrical circuit;-- after "wherein";

at line 2 to insert --electrically isolating said first and second electrical circuits from one another; magnetically coupling said first and second electrical circuits to one another; and-- after "comprises"; and

at line 4 to replace "parallel circuit," with --parallel circuit in said second electrical circuit;--.

Claims 30 and 31 have been added, as supported by the specification on page 31, line 20 through page 40, line 23; and by claims 15 and 24 as originally filed.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 20-27 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,297,439 to Tyren et al.

Applicant respectfully submits that Wipasuramonton et al. does not disclose or suggest all of the elements or limitations of claims 20-27 as presently amended.

Regarding claim 20, Applicant respectfully submits that Tyren et al. does not disclose or suggest all of the elements and limitations of claim 20 as presently amended, and therefore is not a proper reference under 35 U.S.C. § 102(b). More particularly, Tyren et al. does not disclose or suggest, *inter alia*, a magnetic circuit comprising at least a portion of a vehicle body or frame.

Because Tyren et al. neither discloses nor suggests all of the elements and limitations of claim 20, Applicant respectfully submits that the rejection under 35 U.S.C. § 102(b) of claim 20 as presently amended is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 20.

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Claims 21/20, 22/21/20, 23/22/21/20, 24/21/20, 25/22/21/20, 26/21/20, 27/20 each depend upon claim 20. Accordingly, Applicant respectfully submits that if the above argument regarding the novelty of claim 20 in view of Tyren et al. is accepted, then claims 21-27 are also distinguished from Tyren et al. because the addition of further limitations to an already novel claim does not negate novelty. Applicant respectfully requests reconsideration and allowance of claims 21-27 in view of the above argument.

Furthermore, regarding claim 22, Applicant respectfully submits that Tyren et al. does not disclose or suggest all of the elements and limitations of claim 22, and therefore is not a proper reference under 35 U.S.C. § 102(b). More particularly, Tyren et al. does not disclose or suggest, *inter alia*, sensing a signal selected from a voltage across said at least one first coil, a current through said at least one first coil, a voltage across a resistor in series with said at least one first coil, and a voltage across said at least one first capacitor, and comparing said signal with a threshold. Instead, as best understood, Tyren et al. only appears to disclose frequency sensing (col. 5, lines 13-33), and Tyren et al. is silent as to the comparison of a sensed signal with a threshold. Col. 5, lines 55-55 refers to a current in a closed circuit that can pulsate and give rise to a strong emitted signal, but it is the frequency of that emitted signal that is sensed, not the current in the closed circuit.

Claims 23/22/21/20, 25/22/21/20 each depend upon claim 22. Accordingly, Applicant respectfully submits that if the above argument regarding the novelty of claim 22 in view of Tyren et al. is accepted, then claims 23 and 25 are also distinguished from Tyren et al. because the addition of further limitations to an already novel claim does not negate novelty. Applicant respectfully requests reconsideration and allowance of claims 23 and 25 in view of the above argument.

Furthermore, Applicant respectfully submits that Tyren et al. does not disclose or suggest all of the elements and limitations of claims 23, 25 and 27, and therefore is not a proper reference under 35 U.S.C. § 102(b), for the following reasons:

Regarding claims 23 and 25, Tyren et al. does not disclose or suggest, inter alia, sensing from said signal the operativeness of said electrical circuit including said at least one first coil.

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Applicant respectfully submits that col. 5, lines 13-33 cited by the Examiner is silent as to the sensing of operativeness of the coil.

Regarding claim 27, Tyren et al. does not disclose or suggest, *inter alia*, electrically isolating first and second electrical circuits from one another; magnetically coupling the first and second electrical circuits to one another; and operatively coupling at least one second capacitor in parallel with a second coil of said at least one coil so as to form a parallel circuit in the second electrical circuit, wherein the at least one coil cited in claim 20 is electrically coupled to the first electrical circuit.

Because Tyren et al. neither discloses nor suggests all of the elements and limitations of claims 22, 23, 25 and 27, Applicant respectfully submits that the rejection of claims 22, 23, 25 and 27 under 35 U.S.C. § 102(b) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 22, 23, 25 and 27 in view of the above argument.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 1-7, 14-15, 17, 19 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of U.S. Patent No. 5,428,534 to Wetzel et al.

Applicant respectfully submits that Tyren et al. in view of Wetzel et al. do not disclose or suggest all of the elements or limitations of claims 1-7, 14-15 and 29 as originally filed, and claims 17 and 19 as presently amended.

Regarding claims 1 and 20, Applicant respectfully submits that Tyren et al. in combination with Wetzel et al. do not disclose or suggest all of the elements and limitations of either claim 1 as filed or claim 20 (upon which claim 29 depends) as presently amended, and therefore are not a proper references under 35 U.S.C. § 103(a).

The Examiner has stated that Tyren et al. does not explicitly teach the deformation sensor incorporated into a vehicle, the magnetic circuit being in the vehicle body. As best understood, Tyren et al. teaches a magneto-elastic element (11) that "constitutes the sensor's measuring body" (col. 3, lines 42-43), "is advantageously made from amorphous material" (col. 3, lines 45-46), and which is "designed as a thin strip 16 or as a plate, on the upper side of which is secured, in a

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predetermined position, electric coil 8." (Fig. 5; col. 3, lines 60-63), so that the "resonance circuit 10 and magneto-elastic element 11 constitute a unit which can be easily handled and attached to shaft 1 or any other object of measurement." (col. 4, lines 15-18). In an alternate embodiment (Fig. 6), the "[m]agneto-elastic element 11, which constitutes the core of coil 8, is in this case formed by a number of mutually parallel conductors 19 so as to form a loop. The electrical conductors 19 forming coil 8 are substantially oriented at right angles in relation to wires 18 of the magneto-elastic material so that jointly they form a network of an interlocking structure similar to a weave." (Figs. 6; col. 4, lines 20-27). Furthermore, "a characteristic common to all embodiments consists in the fact that electric resonance circuit 10 is firmly linked with magneto-elastic element 11 so as to produce an integrated unit. Furthermore, coil 8 is located in immediate proximity and in a fixed position relative to magneto-elastic element 11." (col. 4, lines 49-53). Accordingly, as best understood, Tyren et al. would appear to disclose a magnetic circuit that is attached to the object being sensed, rather than a magnetic circuit wherein the object being sensed is the magnetic circuit.

As best understood, Wetzel et al. does not disclose or suggest a deformation sensor that either is responsive to the magnetic properties of a vehicle body, or for which the vehicle body would be a magnetic circuit. Applicant respectfully submits that the combination of Tyren et al. with Wetzel et al. could at most suggest attaching the magneto-elastic element (11) of Tyren et al. to the outer skin of the vehicle of Wetzel et al.; both of these references are silent as to the use of the vehicle body as a magnetic circuit.

Accordingly, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. does not disclose a "magnetic circuit of a vehicle body" in accordance with claims 1 and 20, but instead, at most would suggest a magnetic circuit that is attached to a vehicle body. Because neither Tyren et al. nor Wetzel et al., alone or in combination, disclose or suggest all of the elements and limitations of claim 1, Applicant respectfully submits that the rejection of claim 1 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 1.

Claims 2/1, 3/1, 4/1, 5/1, 6/1, 7/6/1, 14/6/1, 15/6/1, 17/1, 19/6/1 and 29/20 each depend upon either of claims 1 or 20. Accordingly, Applicant respectfully submits that if the above

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argument regarding the non-obviousness of claims 1 and 20 in view of Tyren et al. is accepted, then claims 2-7, 14-15, 17, 19 and 29 are also distinguished from both Tyren et al. and Wetzel et al., alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claims 2-7, 14-15, 17, 19 and 29 in view of the above argument.

Furthermore, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. do not disclose or suggest all of the elements and limitations of claims 2, 14, 17 and 19, and therefore are not a proper reference under 35 U.S.C. § 103(a), for the following reasons:

Regarding claim 2, neither Tyren et al. nor Wetzel et al. disclose or suggest that the magnetic circuit comprises at least one ferromagnetic element of a vehicle body. As argued hereinabove, Tyren et al. would appear to disclose a magneto-elastic element (11) (e.g. amorphous metal) that is attached to the object being sensed. Wetzel et al. does not disclose or suggest a vehicle body being used as a magnetic circuit of a magnetic sensor. Applicant respectfully submits that any suggestion to use the vehicle body of Wetzel et al. as a magnetic circuit would involve improper hindsight reasoning.

Regarding claim 14, Applicant respectfully submits that col. 5, lines 51-55 -- cited by the Examiner -- does not disclose the sensing of either a voltage across the at least one first coil, a current through the at least one first coil, a voltage across a resistor in series with the at least one first coil, and a voltage across the at least one first capacitor. A receiver of the electronic unit (6) senses a radiated response received by an aerial (5) to a signal transmitted via an aerial by a transmitter of the electronic unit (6), which provides for determining the resonant frequency of the resonance circuit (10). Accordingly, the electronic unit (6), being separated from the resonance circuit (6), does not disclose or suggest sensing any of the measures enumerated in claim 14.

Regarding claims 17 and 19, Applicant respectfully submits that neither Tyren et al. nor Wetzel et al. disclose or suggest first and second electrical circuits that are electrically isolated from one another, but magnetically coupled to one another, wherein the at least one first coil

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comprises a first coil electrically connected to the first electrical circuit, and the second electrical circuit comprises at least one second capacitor in parallel with at least one second coil.

Because neither Tyren et al. nor Wetzel et al. disclose or suggest all of the elements and limitations of claims 2, 14, 17 and 19, Applicant respectfully submits that the rejection of claims 2, 14, 17 and 19 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claims 2, 14, 17 and 19 in view of the above argument.

Claims 8, 9 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1, 6 and 17, and further in view of U.S. Patent No. 3,835,371 to Mirdadian et al.

Claims 8/6/1, 9/6/1 and 18/17/1 each depend upon claim 1. Accordingly, Applicant respectfully submits that if either of the above arguments regarding the non-obviousness of claim 1 in view of Tyren et al. and Wetzel et al. is accepted, then claims 8, 9 and 18 are also distinguished from Tyren et al., Wetzel et al. and Miradian et al., alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claims 8, 9 and 18 in view of the above argument.

Claim 18/17/1 depends upon claim 17, which depends upon claim 1. Accordingly, Applicant respectfully submits that if either of the above arguments regarding the non-obviousness of claim 17 in view of Tyren et al. and Wetzel et al. is accepted, then claim 18 is also distinguished from Tyren et al., Wetzel et al. and Miradian et al., alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claim 18 in view of the above argument.

Furthermore, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. and Miradian et al. do not disclose or suggest all of the elements and limitations of claims 8, 9 and 19, and therefore are not a proper reference under 35 U.S.C. § 103(a). More particularly,

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Applicant respectfully submits that col. 3, lines 30-40 of Miradian et al. -- cited by the Examiner -- do not teach a square wave or mono-polar signal as the output signal. Instead, Miradian et al. at col. 3, lines 31-34 discloses "a symmetrical sinusoidal output waveform in the transmitter oscillator coil so that the waveform of the transmitted energy is substantially free of harmonic components." (emphasis added) The square wave signal referred to at col. 3, lines 34-40 is for controlling the sinusoidal output waveform, and is therefore not used as an output signal. A square wave signal inherently contains harmonic components, so contrary to the Examiner's assertion otherwise, Applicant respectfully submits that Miradian et al. teach away from an oscillator that generates a square wave signal which is applied to the at least one first coil. Because neither Tyren et al., Wetzel et al. nor Miradian et al. disclose or suggest all of the elements and limitations of claims 8, 9 and 18, Applicant respectfully submits that the rejection of claims 8, 9 and 18 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claims 8, 9 and 18 in view of the above argument.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claim 1, and further in view of U.S. Patent No. 5,276,398 to Withers et al.

Claim 10/6/1 depends upon claim 1. Accordingly, Applicant respectfully submits that if either of the above arguments regarding the non-obviousness of claim 1 in view of Tyren et al. and Withers et al. is accepted, then claim 10 is also distinguished from Tyren et al., Wetzel et al. and Withers et al., alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claim 10 in view of the above argument.

Furthermore, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. and Withers et al. do not disclose or suggest all of the elements and limitations of claim 10, and therefore are not a proper reference under 35 U.S.C. § 103(a). More particularly, Withers et al. at col. 1, lines 20-26 -- cited by the Examiner -- is silent as to the filtering of harmonic components in the first signal, and is also silent as to the use of the inherent capacitance of the at least one coil for purposes of filtering a harmonic component of the first signal, wherein

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harmonic components are by definition at integral multiples of the fundamental frequency. Applicant respectfully submits that the Examiner has used improper hindsight reasoning in rejecting claim 10. Because neither Tyren et al., Wetzel et al. nor Withers et al. disclose or suggest all of the elements and limitations of claim 10, Applicant respectfully submits that the rejection of claim 10 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 10 in view of the above argument.

Claims 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1, 6 and 17, and further in view of U.S. Patent No. 5,760,577 to Shizuya.

Claims 11/6/1, 12/6/1 and 13/12/6/1 each depend upon claim 1. Accordingly, Applicant respectfully submits that if either of the above arguments regarding the non-obviousness of claim 1 in view of Tyren et al. and Wetzel et al. is accepted, then claims 11-13 are also distinguished from Tyren et al., Wetzel et al. and Shizuya, alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claims 11-13 in view of the above argument.

Furthermore, regarding claims 11 and 13, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. and Shizuya do not disclose or suggest all of the elements and limitations of claims 11 and 13, and therefore are not a proper reference under 35 U.S.C. § 103(a). More particularly, Shizuya is silent as to the resistance of the at least one coil in relation to the other elements in the associated electrical circuit, and furthermore, as best understood, does not even account for the inherent resistance of the coil. (e.g. see Fig. 5). Applicant respectfully submits that because Shizuya does not account for all of the elements of claims 11 and 13, then Shizuya does not set forth the general conditions of claims 11 and 13, so that contrary to the Examiner's assertion, claims 11 and 13 are not simply optimum or workable ranges. Because neither Tyren et al., Wetzel et al. nor Shizuya disclose or suggest all of the elements and limitations of claims 11 and 13. Applicant respectfully submits that the rejection of claims 11 and 13 under 35 U.S.C.

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§ 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claims 11 and 13 in view of the above argument.

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tyren et al. in view of Wetzel et al. as applied to claims 1 and 6, and further in view of U.S. Patent No. 5,707,076 to Takahashi.

Claim 16/6/1 depends upon claim 1. Accordingly, Applicant respectfully submits that if either of the above arguments regarding the non-obviousness of claim 1 in view of Tyren et al. and Wetzel et al. is accepted, then claim 16 is also distinguished from Tyren et al., Wetzel et al. and Takahashi, alone or in combination, because the addition of further limitations to an already novel and non-obvious claim does not negate non-obviousness. Applicant respectfully requests reconsideration and allowance of claim 16 in view of the above argument.

Furthermore, Applicant respectfully submits that Tyren et al. in view of Wetzel et al. and Takahashi do not disclose or suggest all of the elements and limitations of claim 10, and therefore are not a proper reference under 35 U.S.C. § 103(a). More particularly, Applicant respectfully submits that the Examiner has not properly construed the term "between" in claim 16. In the Colpitts oscillator illustrated in Takahashi, the coil L is across the series combination of capacitors C1 and C2, not between capacitors C1 and C2. As illustrated in FIG. 11 and described on page 40, line 24 through page 41, line 10 of the instant application, in a "between" relationship, the coil (L1) and capacitors (C1, C2) are in series with one another, with one terminal of the coil (L1) connected to a terminal of one capacitor (C1), and the other terminal of the coil (L1) connected to a terminal of the other capacitor (C2). Because neither Tyren et al., Wetzel et al. nor Takahashi disclose or suggest all of the elements and limitations of claim 16, Applicant respectfully submits that the rejection of claim 16 under 35 U.S.C. § 103(a) is improper. Accordingly, Applicant respectfully requests reconsideration and allowance of claim 16 in view of the above argument.